

the pine forest by the dunes. Retrogression resulted, as was evidenced by the numerous dead pines on the beach front. A few living pines had survived; two species, *Pinus strobus* and *Pinus resinosa*, being represented. The tree upon which the sandy sporophores were found was probably the latter species, *Pinus resinosa*.

In the opinion of Dr. Arthur Hollick, who has examined the specimens, the conclusions of the writer were verified. He regards the phenomenon as the result of the mechanical mixing of the sand with the hyphae and compares it with the sponges which have been washed upon the shore, rolled around in the sand, often presenting a similar appearance and result. He states that "this is not replacement of the vegetable tissue by sand and is not analogous to petrification or conversion into mineral matter."

This interesting material was gathered upon the sandy shore of Presque Isle, one of the Apostle Islands in Lake Superior, northern Wisconsin. The accompanying photographs were taken from material collected and sent to the botanical laboratories of the Pennsylvania State College. Specimens have been deposited in the herbarium of the New York Botanical Garden and in the herbarium and museum of the Pennsylvania State College.

THE PENNSYLVANIA STATE COLLEGE

THE LENGTH OF ERYTHRONIUM STAMENS

BY F. L. PICKETT

In a recent note in this journal* Paul W. Graff recorded some interesting observations on the length of stamens of various *Erythronium* species. The facts recorded are of chief interest because they have not appeared in standard manuals and because of the appearance of figures in some manuals which are untrue to the actual conditions. The length of stamens may not be of diagnostic importance, but it seems that illustrations should at least be true.

* Paul W. Graff, The Stamens of *Erythronium Americanum*, *Torreyana* 16: 180-182.

The facts given in Mr. Graff's note are not new, but have not been given any considerable attention by American authors. The difference in stamen length in *E. americanum* and *E. albidum* was discussed quite fully by Meads in 1893,* and this discussion was noted by European botanists, as in Knuth's Handbuch.† The cut of *E. americanum* in Die Natürlichen Pflanzenfamilien clearly shows the stamens of different length.

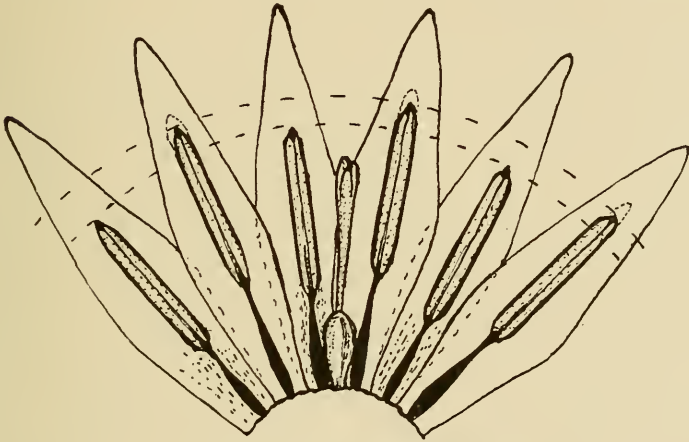


FIG. 1. *Erythronium* stamens.

Following Mr. Graff's suggestion as to northwestern species, I have carefully examined the material available at the State College, and present herewith the results. *E. grandiflorum* Pursh is the species common and abundant in eastern Washington. It shows considerable variation in the size of the plant and in the number and size of the flowers. Examination of more than one hundred specimens collected last summer show the stamens clearly dimorphic in every case. The difference is so evident that a full statement may be of interest. When the buds are ready to open there is a distinct difference, as shown in the text figure, the stamens opposite the outer perianth segments being the shorter by an average of 2 mm. The variation in total

* M. E. Meads, The Range of Variation in Species of *Erythronium*, Bot. Gaz. 18: 134-138.

† P. Knuth, Handbuch der Blütenbiologie, 3: 126. 1904.

length is due almost entirely to differences in filament length, there being hardly measurable differences in anther length. The shorter dehisce entirely before the longer, which continue to increase in length until in the fully open flower a maximum is reached, as indicated by the dotted tips in the figure. The preserved material at hand clearly indicates the maturity and dispersal of pollen from the short stamens before the stigma is functional, while the last pollen is dropped from the long stamens after that period.

The following species have also been examined, with results as given. With clearly evident dimorphic stamens are the following species: *E. citrinum* Wats., *E. giganteum* Lindl., *E. montanum* Wats., *E. propullans* A. Gray. The last named is represented here by a very few specimens, and I would be glad to know whether or not the same condition of stamen length is evident in larger collections. This is of special importance because of the fact that the illustration in Britton and Brown's Illustrated Flora shows the stamens of equal length. *E. parviflorum* (Wats.) Gooding has stamens of varying length but not clearly of two groups as in the other species examined. This point is important as bearing upon the possible relationship of this species with *E. grandiflorum* Pursh, since it was considered by Watson as but a variety or at most a subspecies.

WASHINGTON STATE COLLEGE,
PULLMAN, WASH.

BRYOLOGICAL NOTES

BY A. LEROY ANDREWS

III. FURTHER MOSSES NEW TO ICELAND*

As introductory to this short list of species it should be said that my Icelandic itinerary of 1914, which was largely controlled by other considerations than those of botanical research, consisted of part of a day at Seydhisfjörður on the east coast, where collections were made at points readily accessible from the harbor, another half-day at Akureyri in the north, where

* Numbers I and II of this series were published in *TORREYA*, April 1915 and February, 1916.